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HIGH-PERFORMANCE PISTON CORE FOR A MAGNETORHEOLOGICAL DAMPER

ABSTRACT OF THE DISCLOSURE

A high-performance piston core including a first piston cylinder and a second piston cylinder, with a piston center longitudinally disposed between and magnetically coupling the first piston cylinder and the second piston cylinder. The piston center is made of high-performance magnetic material, such as Cobalt steel (CoFe), Silicon steel (SiFe), Vanadium/Cobalt steel (Permendur), alloys thereof, or the like. The high-performance magnetic materials exhibit high magnetic permeability and reduce the magnetic reluctance of flux bottlenecks. In addition, high-performance magnetic materials typically saturate at a higher flux density than the conventional magnetic materials. The first piston cylinder and the second piston cylinder can be made of conventional magnetic material, such as low-carbon steel. The first piston cylinder can include a ring disposed about an end, where the end is longitudinally attached and magnetically coupled to the piston center.